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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|--------------------------------|------------------------|
| 10/556,918 | 11/14/2005 | Carl J. Brunnett | PHUS030122US | 1574 |
| 38107 7590 05/07/2007 PHILIPS INTELLECTUAL PROPERTY & STANDARDS 595 MINER ROAD CLEVELAND, OH 44143 | | | EXAMINER MIDKIFF, ANASTASIA | |
| | | | ART UNIT 2882 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/556,918 | Applicant(s) BRUNETT, CARL J. | |
| | Examiner Anastasia Midkiff | Art Unit 2882 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>14 Nov 2005</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

On Page 8, Lines 2-3, replace "the oscillator 74 and time counter 78 may combined a time circuit," with --the oscillator 74 and the time counter 78 may be combined as a time circuit-- for grammatical clarity.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

Claims 6-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Said claims are toward a computer-implemented method involving an algorithm and computational data. Though the properties calculated by the model are physical properties, the data is none-the-less generated within a computer without a physical manifestation. Thus, these claims do not produce a result which meet the standard of being concrete, tangible and useful.

The claims must be for a practical application of the abstract idea, law of nature, or natural phenomenon. *Diehr*, 450 U.S. at 187, 209 USPQ at 8 ("application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.") *Benson*, 409 U.S. at 71, 175 USPQ at 676 (rejecting formula claim because it "has no substantial practical application").

To satisfy section 101 requirements, the claim must be for a practical application of the 101 judicial exception, which can be identified in various ways:

1) The claimed invention "transforms" an article of physical object to a different state or thing.

2) The claimed invention otherwise produces a useful, concrete and tangible result, based on the factors discussed in MPEP 2106, and See also:

http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf.

The manipulation of data and parameters to determine the average radiation intensity within a data interval is performed within the computer implementing programs and is therefore nonstatutory subject matter. Manipulation of data without storing or displaying said data does not include a physical transformation outside of a computer or representation thereof. A process consisting solely of mathematical operations, i.e., converting one set of numbers into another set of numbers, does not manipulate appropriate subject matter and is not deemed to be concrete, tangible, and useful and is therefore non-statutory.

An example which would make the instant method steps statutory would be to include steps of storing or displaying the determined radiation intensity so that the data is available for a practical application. Hence, the data would become concrete, tangible, and useful.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent to Trotel (US 5,022,060) in view of U.S. Patent to Yu (US 6,094,473).

With respect to Claims 1 and 6, Trotel teaches a CT scanner that performs both linear and rotational scanning (Column 6, Lines 37-44), and the method for its use, comprising:

- a support (6) for rotating a radiation source (2) around an examination region (Column 6, Lines 16-26); and
- a radiation detector (4) comprising an ion chamber (Column 2, Lines 20-34) for generating a signal that varies with an intensity of radiation traversing the examination region (Column 2, Lines 25-36).

Trotel does not specifically teach a means for converting an analog data signal to a digital data signal including aperiodic pulses varying in frequency with the intensity of the radiation traversing the examination region as the radiation source rotates about the examination region, a means for producing a time signal indicative of data intervals, or a means for determining average radiation intensity in each data interval by counting the pulses of the digital data signal starting with a digital data signal pulse occurring in a

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preceding data interval and continuing to a digital data signal pulse occurring in a succeeding data interval.

Yu teaches an x-ray scanner (1) with an ion chamber detector (16), and the method for its use, wherein there is provided:

- a plurality of x-ray detector sensors (30a-c) for generating an analog data signal that varies with an intensity of radiation traversing the examination region;
- a digital frequency modulated output circuit (40) with a converter circuit (44) for converting the analog data signal to a digital data signal including aperiodic pulses varying in frequency with the intensity of radiation traversing the examination region (Abstract, Lines 1-6);
- an oscillator circuit (46) for producing a time signal indicative of data intervals (Column 6, Lines 1-8);
- a means (60, 70, 72) for determining average radiation intensity in each data interval including a processor circuit (72) by counting the pulses of the digital data signal in counter circuits (60, 70), starting with a digital data signal pulse occurring in a preceding data interval and continuing to a digital data signal pulse occurring in a succeeding data interval, said intervals stored in the counter register (Column 6, Lines 15-64)

to provide improved signal-to-noise ratio (Column 3, Lines 64-67).

It would have been obvious to one of ordinary skill in the art at the time of the rejection to use the frequency modulated system of Yu in the apparatus and method of

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Trotel, to improve signal to noise ratio in signals produced during the scanning of Trotel, as demonstrated by Yu (Abstract and Column 3, Lines 64-67).

With respect to Claim 2, Yu further teaches that signal producing means includes a digital counter circuit (70) for detecting a start of a first measured data interval and a start of a next data interval (Column 6, Lines 26-40).

With respect to Claim 3, Yu further teaches that determining means further includes:

- a means (70, 72) for storing a first digital data pulse count in a first start data location and storing a first time signal value (74) associated with the first digital data pulse count in a first start time location (70) each time a pulse occurs on the digital data signal until the first measured data interval starts (Column 6, Lines 26-40), and for storing a second digital data pulse count in an end data location and storing a second time signal value (80) associated with the second digital data pulse count in an end time location (72) when the next pulse occurs on the digital data signal after the start of the next data interval is detected (Column 6, Lines 26-46);
- wherein the determining means (70, 72) determines the average intensity of the detected radiation for the first measured data interval (Abstract, Lines 1-6).
- determining average intensity is achieved by dividing a difference between the pulse counts stored in the start and end data locations by a difference

between the values stored in the start and end time locations (Column 6, Lines 26-40).

With respect to Claims 4, 5, 10, 11, and 16, Yu further teaches the converting means further includes:

- a means (44) for adding a minimized offset signal to the analog data signal so that the intensity of the analog signal is such that at least one aperiodic pulse occurs on the digital data signal during each data interval (Column 6, Lines 1-8);
- wherein the first and second data intervals are adjacent to each other (Column 6, Lines 26-46).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent documents to: Taylor (US 4,048,503), Houston (US 4,129,783), Beck, Jr., et al. (US 4,157,472), Ishihara et al. (US 5,953,439), and Izumi et al. (US 2004/0206909 A1) regarding signal pulse generation/modulation in x-ray scanning apparatuses.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anastasia Midkiff whose telephone number is 571-272-5053. The examiner can normally be reached on M-F 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ASM
4/23/07



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SUPERVISORY PATENT EXAMINER